University of Virginia
School of Engineering and Applied Science

Faculty Survey

On

Graduate Teaching and Technology

Spring 2004

Executive Summary

During the Spring Semester of 2004, a survey of faculty in the UVA School of Engineering and Applied Science was undertaken to assess faculty use of and mindset regarding technology in the graduate teaching and learning environment. The survey sought to understand faculty members' level of comfort with technology, current use of technology in graduate teaching, perspective regarding the use of technology in teaching / learning, and receptiveness to personal investments towards understanding technologies entering the educational marketplace. The survey sought to elicit faculty comments on technology used for classes taught exclusively to students on-grounds as well as to students taught as part of the engineering school's distance learning program. 64 responses were received from the engineering school's 150 faculty (tenure / tenure track and teaching).

This report contains the web-based survey instrument that was used to collect the data. It also contains a statistical summary of the responses to each of the survey questions. Following the summary of responses, a short set of comments about the results has been included in an effort to offer perspective on the results. That critique was prepared following a review of the full survey submissions from all faculty who responded to the request for input.

In brief, the survey revealed that most SEAS faculty feel proficient with technology (70% rated themselves as a 4 or 5 on a proficiency scale of 5.). They most often learn about new instructional technologies through their colleagues (68%). In the classroom, the most often used technology tool is Powerpoint (71%), followed by math related software packages (40%). The vast majority of respondents indicated that they use the university's Toolkit course management system (81%) and that they are generally satisfied with its capabilities. A large majority of the faculty (74%) said that, given other professional priorities and performance metrics, they do not have the time necessary to incorporate additional educational technologies into their teaching portfolio. A significant minority (37%) expressed an interest in developing on-line course components if appropriate resources (e.g., summer salary and multimedia support) were provided. Approximately half of the respondents expressed interest in educational technologies that fostered enhanced communication outside the classroom (e.g., class discussion, sub-group discussion, and document exchange). The survey provided the commercial package Blackboard as an example of such a tool. Finally, approximately one-third of all respondents expressed an interest in hearing more about educational technologies, either through an e-mail distribution mechanism or periodic face-to-face meetings.

At the end of the report is a very relevant article from the Chronicle of Higher Education that helps to place the results of this survey into the broader national context.

Survey Instrument

SEAS Faculty Survey

Graduate Teaching and Technology

Dear SEAS Faculty,

Please take a few minutes to respond to this survey regarding your use of technology in graduate teaching. The survey takes about 15 minutes to complete, and I would be most appreciative if you could complete it no later than March 15th, the end of Spring Break!

Thank you,

Jim Aylor

Associate Dean for Academic Programs

Engineering School Faculty Survey

Graduate Teaching and Technology

Your responses will be anonymous unless you choose to supply your contact information at the end of this survey.

1. Please rate your technology proficiency on a scale from 1 to 5 with 5 being "very proficient" and 1 being "not proficient."

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

2. How do you normally learn about new technology options that might be useful for teaching?

3. Please list those software packages that you have recently used to help teach graduate courses (e.g., Mathlab, PowerPoint):

4. Are you currently using UVA's Toolkit as a web-based supplement in your graduate course(s)?

○ Yes ○ No

If you answered Yes, are there particular features of Toolkit that you like?

If you answered Yes, are there potentially valuable capabilities that Tookit lacks?

5. Are there software packages or hardware systems that you would like to use in your graduate course(s), but have not been able to do so?

○ Yes ○ No

If you answered Yes, please describe the system(s) and the reason(s) you have not implemented them.

6. Would you be interested in developing a graduate course which includes a significant web-based, or on-line, component? Such a development could reduce the number of times per semester when your class meets face-to-face.

○ Yes ○ No

7. If you are interested in moving a portion of your course content on-line, please outline the type and quantity of support you feel would be required to assist you in making this transition (e.g., multimedia development staff support, educational pedagogy support, summer salary support)?

8. If you are not currently interested in moving course content to an on-line format, please describe your reservations.

9. What do you see as the most significant barrier(s) to incorporating more educational technologies into your teaching style?

10. When you teach a course in the engineering school's distance education program, there is an additional technology package available for your use, Blackboard (This link will open in a separate window.):

http://www.blackboard.com/highered/ls/index.htm

This learning management system contains several potentially useful features, including a threaded discussion option, the ability to create online groups with their own designated interaction and document exchange spaces, and a synchronous chat option. Would you be interested in learning how to incorporate these additional course components into a distance education course?

Yes No

If you answered Yes, which Blackboard features interest you the most?

Do you feel that the engineering school should consider making this type of learning system more broadly available for all courses?

Yes No

If you are willing to be contacted as part of a follow-up to this survey, please complete questions 11-14:

11. Please provide your name, phone number, and email address:

12. Would you be interested in receiving information about emerging technologies useful in teaching?

○ Yes ○ No

If you answered Yes, would you prefer occasional e-mail updates or periodic face-to-face discussions and presentations on teaching technology?

○ e-mail ○ face-to-face

13. Should the engineering school organize an ongoing faculty discussion group to look at issues associated with the use of technology in the classroom?

○ Yes ○ No

Would you be willing to participate?

○ Yes ○ No

14. Would you be interested in participating in a one-day summer retreat at which you and faculty from other Virginia universities (e.g., Virginia Tech, Old Dominion University, William and Mary, Virginia Commonwealth, and George Mason) discuss the use of technology in the classroom, particularly as it relates to distance education?

○ Yes ○ No

Submit Information

School of Engineering and Applied Science

Thank you for providing this valuable input. Your responses will help us to continue the development of our graduate education program. Your survey is now complete.

Sincerely,

Jim Aylor

Associate Dean for Graduate Programs

Summary of Survey Responses

SEAS Faculty Survey
Graduate Teaching & Technology
Spring 2004
Summary of responses

1) 70% or respondents rated themselves as 4 or higher.
   7% were in the 1-2 range

2) Learning about technology:
   a. Colleagues/Word of Mouth (68%)
   b. The Literature (20%)
   c. E-mail/list/servs/general Internet (17%)
   d. conferences
   e. ITC/TRC
   f. "on my own"

3) Software Packages used in class:
   a. PowerPoint (71%)
   b. "Math related" (40%)
   c. Office Suite (19%)
   d. Web-related
   e. Cad packages
   f. "Specialty" area packages

4) 81% of respondents are using Toolkit

   Favorite Features:
   a. Administrative Features including e-mail, class roster, grade book (45%)
   b. Ability to post materials/quizzing (40%)
   c. Anonymous Feedback (13%)

   What Toolkit lacks:
   a. Well over 50% responded with "Nothing that I can think of"
   b. Programmability in grade book
   c. Quiz security

5) Faculty who wish to use additional software packages but have not been able to do so:
   a. Yes (16%)
   b. No (75%)

   Packages they have not been able to use (Reasons: COST) :
   a. Mathematica
   b. Microsoft IIS
   c. NVIVO by SQR

6) Interested in developing course with online components:
    a. Yes (37%)
    b. No (60 %)

7) If interested what they would need:
    a. Summer Salary (21%)
    b. Multimedia Support (21%)
    c. Time
    d. Assistants

8) Reasons for those not interested:
    a. Can't interact properly with students (43%)
    b. Time commitment to create (17%)
    c. Lack of reward/recognition

9) Barriers to Incorporating more Educational Technologies into teaching:
    a. Time (74%)
    b. Lack of support/resources (19%)
    c. Added technology does not "improve" anything (16%)
    d. Lack of reward/recognition

10) Blackboard for use in CGEP:
    a. Yes (43%)
    b. No (41%)

Blackboard features of interest:
-class discussions
-group feature
-document exchange
(i.e. those features delineated on the survey, with all of the above were about equally represented: 4-5 responses a piece)
*2-3 responses once again indicated concern over the "quality" aspect and lack of time

Blackboard use for SEAS in general:
a. Yes (46%)
b. No (30%)

Concluding Impressions

Concluding Impressions from the
SEAS Faculty Survey on Graduate Teaching and Technology

The majority of the SEAS faculty members who responded to the SEAS Faculty Survey on Graduate Teaching and Technology rated themselves as very proficient users of technology. This result is not surprising as the various fields of engineering are infused with numerous forms of technology and it could be argued that a faculty member who is interested and adept with using technology would be motivated to respond to a technology survey.

Faculty proficiency with technology appears to have nurtured an active and frequent adoption of technology among respondents. Their instructional technology usage can be categorized into the following areas (by software type): 1) Course Management, 2) Presentation, 3) Math, and 4) Specialty packages. As course management software is the most widely used among faculty, the survey devoted multiple question items to this topic. The findings indicate that overall, faculty respondents are very pleased with the currently provided course management platform, Toolkit. The administrative features such as class e-mail lists, class roster, and grade book were cited as the most popular capabilities followed by the ability to conduct online quizzing and receive anonymous feedback from students. Faculty were also queried about a potential additional Course Management System, Blackboard, and many respondents are interested in the communication features which this system offers. However, many are also very "cautious" in their interest and are concerned about the quality of any mediated experience versus a "live" interaction with students.

While most faculty member respondents are using Toolkit and presentation software such as Microsoft PowerPoint, several respondents indicated that there are additional packages which they would like to use but cannot. The cost of using other software packages was cited as the main barrier. Although not clearly articulated, presumably the cost barrier is specifically the cost of acquiring the software packages.

For those faculty who have additional technology interests and ideas but are not incorporating such technologies into their teaching, two primary factors were cited as contributing to their reluctance to move forward: 1) insufficient funding to support the introduction of additional technologies into the classroom 2) insufficient resource support (i.e. financial,, promotion and tenure, release time) for faculty interested in working with technology in teaching.

The survey responses also highlight a potential need for a more organized approach to technology training. Most faculty indicated that they learn about new technologies "by word of mouth." While faculty appear comfortable with this process, many indicated, at the end of the survey, that they would be interested in a semi-formal e-mail or periodic face-to-face communication mechanism for learning about teaching technologies. The survey suggests that a systematic training and development approach would be

accessed by a fair number of faculty and thus facilitate further and more varied instructional technology adoption.

In addition to traditional classroom instructional technology usage, roughly a third of respondents indicate that they would be interested in developing a course with online components. A clear set of support needs was also articulated if they were to undertake such an effort, specifically: 1) summer salary support, 2) multimedia development support, and 3) release time. Graduate Assistants were also identified by a few respondents as being a necessary support. Respondents not interested in developing a course with an online component, are primarily concerned with the “quality” aspect of online learning opportunities and cite insufficient time and rewards for such efforts as further deterrents.

Concerns regarding instructional “quality” and the ability to interact effectively with students were consistent themes throughout the survey as related to any type of technology integration and specifically any type of distance learning experience. This concern reinforces the need for further faculty development to emphasize effective teaching with technology practices.

An additional theme that flowed through many of the survey responses focused on the lack of rewards and support for those involved with instructional technology integration efforts or distance education efforts. The current promotion and tenure review process does not recognize these types of activities. This lack of connection will challenge the growth of any efforts to motivate enhanced use of technology in teaching and fuel the resistance to be involved in such efforts. Should it be deemed important, the information gathered from this survey suggests that revision of the criteria by which promotion and tenure are determined to include the effective use of instructional technology and quality distance teaching would act as an important motivator of faculty effort in this arena.

Addendum

Chronicle of Higher Education

Wednesday, August 4, 2004

http://chronicle.com/daily/2004/08/2004080403n.htm

Students Have Mixed Views of Technology's Impact on Teaching, Survey Finds

By JEFFREY R. YOUNG

Colleges have spent a lot of money putting technology in the classroom, and while the innovations have made courses more convenient, the spending has yet to have a large impact on learning, according to a new survey of students.

The survey, of 4,374 freshmen and seniors at 13 colleges of all types, was conducted this year by the Educause Center for Applied Research, a group supported by 300 colleges and several corporate sponsors interested in academic technology.

According to a draft report on the survey, 48.5 percent of respondents said the biggest benefit of classroom technology is convenience, such as the ability to check grades online. Only 12.7 percent of the students said improved learning was the greatest benefit, and 3.7 percent said technology provided no benefit at all in the classroom.

And when asked how much information technology they wanted professors to use in class, the largest group of respondents (41.2 percent) said they preferred "moderate use of IT." About 31 percent said they wanted courses with "extensive IT," and 22.7 percent said they preferred courses with "limited IT." Very few of the students, just 2.2 percent, said they wanted entirely online courses, and 2.9 percent said they preferred courses with no IT at all.

"There's a lot of mythology about the new student and how they love online and they live online," said Richard N. Katz, a vice president for Educause, in an interview. "That might be true in their personal lives, but they are really not expecting their education to be all with technology."

Researchers who led the survey also conducted interviews with 132 of the students. The students expressed frustration at how some professors use technology, specifically PowerPoint slide shows.

"Most faculty use of technology is fairly bad," said one student quoted in the report. "Many want to use it but are scared because students know more and they get embarrassed." And, the report added, "students complained that faculty would often read their PowerPoint slides out loud (instead of teaching from them) and frequently moved too quickly through the material."

As Mr. Katz put it, "PowerPoint used badly actually makes a lecture or seminar worse."

But the researchers said their data show that when technology is used for online quizzes and other interactive features, students said it helped them to learn.

Despite the students' apparent disdain for some high-tech teaching methods, Mr. Katz argued that the research shows that spending on technology will pay off in the long run. "The lag time between the time a technology is released and the time it is fully and completely socialized," he said, "can be a very, very long time."

Mr. Katz said he was surprised at the students' high praise for course-management systems. Of the students surveyed, 76.1 percent said their experience using a course-management system was positive or very positive, with only 6.6 percent saying it was negative or very negative (17.3 percent were neutral on the issue).

The most common feature of course-management systems used by the students was the online syllabus, with 95 percent of respondents using it. The least-used feature was online quizzes, with 70 percent saying they had been in courses where professors set up such quizzes.

"The jury is out on its impact on learning and the learning experience," the report says. "Our data suggest that we are at best at the cusp of technologies being employed to improve learning."

The final report on the survey is set to be released this fall, and will be available for sale on the group's Web site.

William F. Massy, a professor emeritus of education and business administration at Stanford University, said he was not surprised by the findings. He helped conduct a recent survey that found that technology had not lived up to the hype that greeted its arrival on campuses (*The Chronicle,* July 2).

"The use of technology," he said, "has not transformed teaching and learning in higher education as much as we believe it will in the future."